

**Additional Species in the Genus *Strangalia*  
(Coleoptera: Cerambycidae) in Central America,  
with a Revised Key to Males**

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*Abstract.* — Five new species in the lepturine genus *Strangalia* Audinet-Serville are proposed: *S. maculifrons*, *S. panamensis*, and *S. linsleyi* from Panama are described and figured; *S. pseudocantharidis* and *S. instabilis* are described from Panama and Costa Rica. *Pseudotypocerus cantharidis* Chemsak & Linsley and *P. dimidiatus* Chemsak & Linsley are reassigned to *Strangalia*, and the males are described, as is the male of *S. montivaga* from Mexico, El Salvador, and Honduras. *S. annae* Chemsak & Linsley is recorded from Panama. A revised key to males of the genus in Mexico and Central America is provided.

Recent studies by Chemsak (1969), Chemsak and Linsley (1976a, 1976b, 1981), and Linsley and Chemsak (1971) have added much to our knowledge of the Mexican and Central American species of *Strangalia* Audinet-Serville. It is hoped that the following additions will assist in their projected comprehensive generic revision of the Neotropical Lepturinae. As noted by Chemsak and Linsley (1976b), there is a pronounced sexual dimorphism and dichromatism in many species of this genus, which often makes the sexes difficult to associate. Three of the new species described here are thus far known with certainty only from male specimens.

KEY TO MALES OF MEXICAN AND CENTRAL AMERICAN *STRANGALIA*

(To follow 1st couplet in Chemsak and Linsley's (1976b) key to the genus, which provides for separation of males and females.)

- 2(1). Metatibiae without distinct carinae ..... 3
- Metatibiae carinate, at least apically along inside edge from base of inner spur ..... 12
- 3(2). Abdomen with last sternite excavated for its entire length ..... 4
- Abdomen with last sternite excavated for less than its entire length ..... 9
- 4(3). Antennae with very small, indistinct sensory pits ..... 5
- Antennae with well-developed sensory pits ..... 6
- 5(4). Elytra brownish with narrowly black lateral and sutural margins and small black spot each side at middle. Length 16–18 mm. Sinaloa, Mexico ..... *S. sinaloae*
- Elytra black, each usually with a narrow yellowish discal vitta from base to apex. Vittae sometimes reduced. Length 15–18 mm. Mountains of Sinaloa, Mexico to Honduras ..... *S. montivaga*
- 6(4). Antennae with outer segments testaceous, subserrate, with apical

- transverse sensory pits. Elytra black, subplanate; pronotum orange.  
Smaller species; length 9–11 mm. Panama ..... *S. linsleyi*
- Antennae with outer segments black, sensory pits large, longitudinal.  
Elytra usually bicolored. Larger species; length 13–22 mm ..... 7
- 7(6). Antennae with segments 7–11 with double sets of sensory pits; elytra  
black, usually with 2 yellowish vittae. Length 22 mm. Vera Paz,  
Guatemala ..... *S. lachrymans*
- Antennae with segments 7–11 with large single sensory pits ..... 8
- 8(7). Elytra whitish testaceous with margins and suture black; legs all black.  
Length 13–17 mm. Panama ..... *S. dimidiata*
- Elytra orange testaceous with margins and suture black; legs with fore-  
and mesofemora orange. Length 18–20 mm. El Salvador ... *S. cavei*
- 9(3). Elytra yellowish with dark lateral margins expanding discally into  
spots; abdomen with last sternite excavated for  $\frac{2}{3}$  its length. Form  
small, 10–13 mm. Mexico, Belize, and Guatemala ..... *S. pectoralis*
- Elytra varying from black to yellowish, with dark margins, if present,  
not expanded into discal spots. Form moderate sized, 14–20 mm 10
- 10(9). Pronotum orange-testaceous; elytra yellowish with black apices; last  
abdominal sternite shallowly concave, with sinuate-truncate apex.  
Length 11–14 mm. Panama ..... *S. pseudocantharidis*
- Pronotum black, or mostly black; elytra black, orange, or black and  
orange; last abdominal sternite laterally lobed at apex ..... 11
- 11(10). Abdomen with last sternite excavated for  $\frac{1}{2}$  its length, with lateral  
lobes truncate and recurved inward; pronotum densely clothed with  
short appressed golden pubescence; antennae with small sensory  
areas. Length 14–16 mm. Durango and Sinaloa, Mexico .. *S. auripilis*
- Abdomen with last sternite excavated for  $\frac{3}{4}$  its length, with lateral  
lobes rounded, not recurved; pronotum moderately clothed with  
short, thin pubescence; antennae with outer segments with large  
sensory pits. Length 17–20 mm. Costa Rica and Panama .. *S. annae*
- 12(2). Abdomen with last sternite not excavated nor laterally expanded ... 13
- Abdomen with last sternite excavated, expanded to varying degrees 15
- 13(12). Metatibiae without broad plate at apex; metasternum without tuber-  
cles; integument orange and black; elytra narrowly black apically.  
Length 13–18 mm. Mexico ..... *S. biannulata*
- Metatibiae with broad plate at apex; metasternum bituberculate .... 14
- 14(13). Metatibiae arcuate, apices with single spine in addition to broad plate;  
integument orange and black, elytra usually orange. Length 15–18  
mm. Sinaloa, Mexico ..... *S. palaspina*
- Metatibiae straight, apices with 2 spines in addition to broad plate;  
integument testaceous and black, elytra narrowly black along mar-  
gins. Length 17–19 mm. Costa Rica ..... *S. opleri*
- 15(12). Pronotum very sparsely punctate, punctures scattered ..... 16
- Pronotum densely punctate, punctures often contiguous ..... 18
- 16(15). Abdomen with last sternite broadly excavated, expanded sides round-  
ed at apex, margins of sternites simple; elytra black. Length 14–18  
mm. Veracruz, Mexico, to Belize ..... *S. brachialis*

- Abdomen with last sternite narrowly excavated, expanded sides acute at apex; sternites with margins crenulated; elytra testaceous with black spots ..... 17
- 17(16). Abdomen with apex of last tergite emarginate, angles not spinose. Length 14–18 mm. Panama ..... *S. saltator*
- Abdomen with apex of last tergite notched, angles spinose. Length 16–17.5 mm. Nicaragua to Panama ..... *S. picticornis*
- 18(15). Antennae with sensory pits well developed, distinct ..... 19
- Antennae with sensory pits small or absent ..... 24
- 19(18). Abdomen with 4th sternite excavated, impressed, or at least flattened at apex ..... 20
- Abdomen with 4th sternite evenly convex for its entire length .... 22
- 20(19). Abdomen with 4th sternite deeply excavated on apical  $\frac{3}{4}$ ; head with front short. Length 16–19 mm. Panama ..... *S. panamensis*
- Abdomen with 4th sternite impressed or flattened at apex ..... 21
- 21(20). Metatibiae moderately curved, with a single unmodified spur; abdomen with last sternite very strongly expanded, nearly as wide as long, 4th sternite flattened apically; outer antennal segments each with double set of large sensory pits. Length 15–18 mm. Panama ..... *S. maculifrons*
- Metatibiae strongly arcuate, inner spurs modified into small, flat plates; abdomen with last sternite moderately strongly expanded, 4th sternite impressed at apical  $\frac{1}{3}$ ; antennae with sensory pits single. Length 20–25 mm. Oaxaca and Nayarit, Mexico ..... *S. doyenii*
- 22(19). Elytra ochraceous yellow with narrowly black apices. Length 14–17 mm. Costa Rica and Panama ..... *S. cantharidis*
- Elytra not ochraceous yellow with black apices ..... 23
- 23(22). Elytra black with base narrowly reddish. Length 20–22 mm. Sinaloa and Jalisco, Mexico ..... *S. bicolorella*
- Elytra black, each with a longitudinal yellowish vitta which may be entire, or interrupted to form 2 or 3 lineoles. Length 11–16 mm. Costa Rica and Panama ..... *S. instabilis*
- 24(18). Pronotum reddish-orange, with margins narrowly black ..... 25
- Pronotum black ..... 26
- 25(24). Abdomen with last sternite shallowly impressed for  $\frac{4}{5}$  of its length; antennal segments 8 to 11 yellow. Length 19 mm. Nayarit, Mexico ..... *S. westcotti*
- Abdomen with last sternite deeply excavated for nearly its entire length; outer antennal segments black. Length 23–25 mm. Southern Arizona to Chihuahua, Mexico ..... *S. occidentalis*
- 26(24). Abdomen with last sternite strongly longitudinally carinate, sides very strongly inflated, 4th sternite shallowly impressed at apex. Length 20–23 mm. Oaxaca, Mexico ..... *S. cavaventra*
- Abdomen with last sternite not strongly longitudinally carinate, sides moderately expanded, 4th sternite evenly convex. Length 14–19 mm ..... 27
- 27(26). Metatibiae straight; abdomen with last tergite not apically fringed;



- integument black; antennae with last 3 segments yellow. Length 14–16 mm. Guerrero, Mexico ..... *S. xanthotelas*
- Metatibiae curved and expanded at apex; abdomen with last tergite fringed at apex ..... 28
- 28(27). Abdomen with last tergite emarginate at apex; elytra broadly testaceous with black margins. Length 19 mm. Chiapas, Mexico, to Guatemala ..... *S. dolicops*
- Abdomen with last tergite rounded at apex; elytra black. Length 16–17 mm. Guatemala ..... *S. melampus*

***Strangalia maculifrons*, NEW SPECIES**

(Fig. 1)

*Male*. —Form moderate-sized, elongate, strongly tapering posteriorly; integument yellow-orange, with tips of mandibles, tips of palpi, eyes, head except portions of front and occiput, subquadrate macula on front above clypeus, antennae to 7th segment, 2 broad, often coalescent vittae on pronotal disk, scutellum, elytral suture, apices, and margins, abdomen except middle of 1st segment, parts of sternum, tips of mesofemora, apical  $\frac{1}{3}$  of metafemora, metatibiae, and all tarsi, blackish. Head with front long, shallowly punctate, sparsely pubescent; vertex finely, confluent punctate, sparsely pubescent, several long hairs near tempora directed posteriorly, and with longitudinal impression between antennal tubercles; antennae slightly longer than elytra, segments from 6th slightly thickened, with double sets of large oval sensory pits, segments to 5th with depressed black pubescence, remaining segments micropubescent. Pronotum with sides slightly sinuate, apex shallowly impressed; disk evenly convex, with moderately coarse, close punctures; pubescence short, suberect, black or golden to match integument beneath, with a few long, erect hairs laterally on basal  $\frac{1}{2}$ . Prosternum very finely rugulose, finely, sparsely pubescent; mesosternum finely punctate and pubescent; metasternum narrowly concave in middle between 2 elongate elevated tubercles, punctures coarse, sparse. Elytra more than 3 times as long as basal width, sides strongly tapering before middle, slightly dehiscent near oblique, emarginate apices; punctures small, shallow, separated; pubescence short, moderately dense, subdepressed, golden on disk, blackish toward margins. Legs moderately slender; metatibiae slightly curved, carinate on inner side at apical  $\frac{1}{2}$ , with a single spur. Abdomen extending  $1\frac{1}{2}$  segments beyond tips of elytra; sternites finely punctate and pubescent basally, punctures becoming coarser and sparser apically; terminal sternite deeply excavated for its entire length, sides very widely produced, nearly as broad as long. Length 15–18 mm.

*Female*. —Unknown.

*Holotype* male (California Academy of Sciences) and 12 male *paratypes* from PANAMA, Panamá prov., Cerro Campana, 2700', June 3–5, 1981 (E. Giesbert); 90 additional *paratypes* from PANAMA: 14 males, Panamá prov., 10–13 km N El Llano, 1800' (on blossoms of *Psychotria luxurians* Rusby), June 3–5, 1982 (E. Giesbert); 5 males, Panamá prov., 10–13 km N El Llano, May 29–31, 1983 (E. Giesbert); 17 males, Panamá prov., 10–13 km N El Llano, May 29–June 2, 1983 (J. Wappes); 40 males, Panamá prov., 10 km N El Llano, 1400', May 4–June 3, 1984 (E. Giesbert); 9 males, Panamá prov., 10.5 km N El Llano, June 3–5, 1984 (F. Hovore); 5 males, Panamá prov., Cerro Jefe, May 31–June 2, 1984 (F. Hovore).

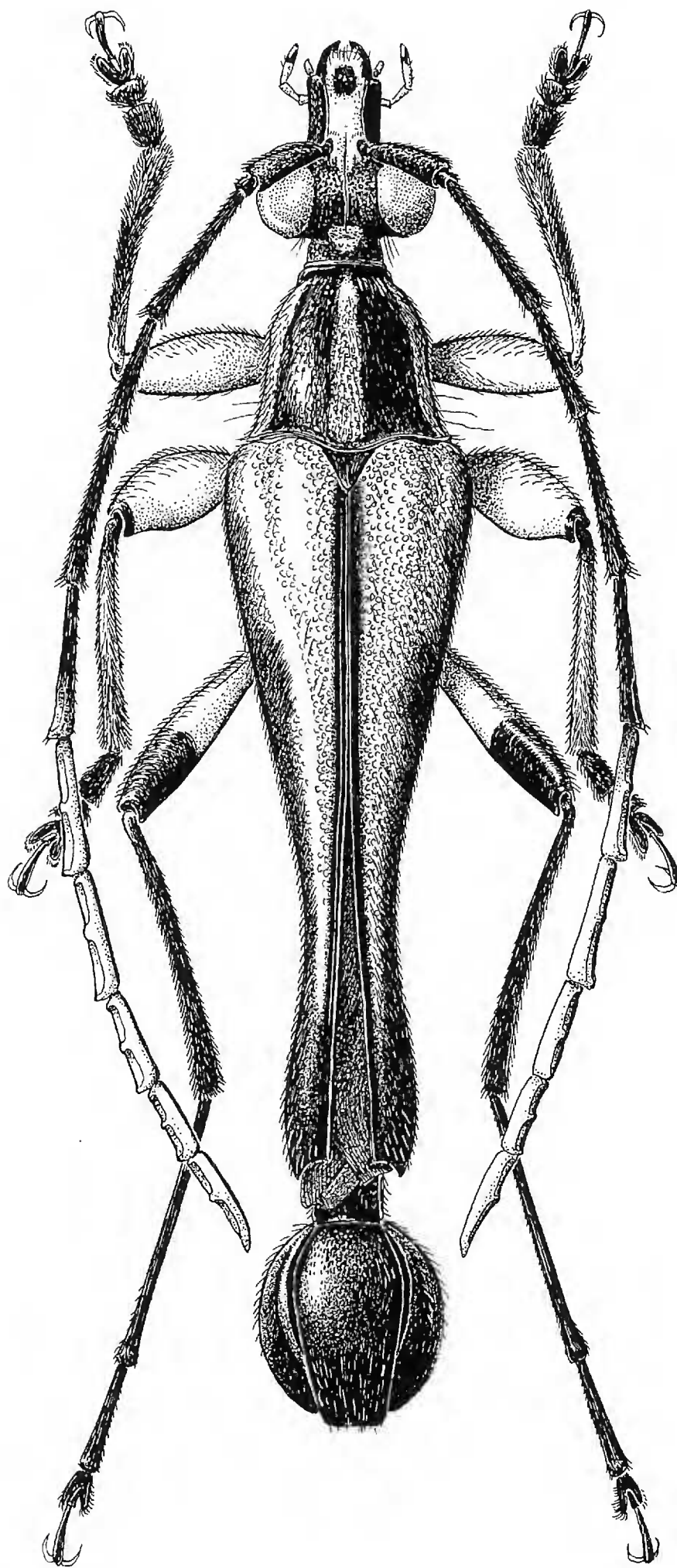


Figure 1. *Strangalia maculifrons* Giesbert, new species; male.



*Remarks.* — This species exhibits a good deal of variation in the integumental coloration of the pronotum. The markings vary from a pair of distinct and separate dark vittae to an entirely black disk. The fronto-clypeal macula on the head, however, is constant in the large series at hand. Elytral color variation consists of the presence or absence of a slight expansion of the lateral black vitta onto the disk as a median spot.

*Strangalia maculifrons* bears a similarity to *S. lachrymans* (Bates) in the peculiar doubled arrangement of the antennal sensory pits.

The presence of occasional unaccompanied females of *Strangalia belti* (Bates) at the above localities where male *S. maculifrons* are found raises the possibility that the two forms belong to a single dimorphic species. *S. belti*, known only from the females, has been collected over a much wider range than the present male form, and may represent a complex of species in which the females are similar, but the males differ. (Further collecting over the range of *S. belti* with observation of mating pairs is needed.)

### *Strangalia panamensis*, NEW SPECIES

(Fig. 2)

*Male.* — Form moderate-sized, elongate, strongly tapering posteriorly; integument yellow-orange, with head, antennae to about middle of 7th segment, varying apical infuscation of pronotum, scutellum, elytral margins, apices, and suture, meso- and metasternum, parts of coxae, abdomen except portions of last 2 sternites, apices of pro- and mesofemora, metafemora (except lighter base), and all tibiae and tarsi blackish. Head with front short, less than  $\frac{1}{2}$  as long as entire eye, moderately punctate, sparsely pubescent, palpi unequal, maxillary pair larger, ovate, with longitudinal impressions; vertex with fine longitudinal impressed line, punctures fine, confluent; antennae shorter than elytra, thickened from 7th segment, single apical sensory pits small on 6th segment, large on segments 7–11, segments to 5th with depressed black pubescence, 7–11 micropubescent. Pronotum with sides slightly sinuate, apex shallowly impressed; disk with punctures fine, close, with vague median impunctate line on basal  $\frac{1}{2}$ ; pubescence fine, short, subdepressed, golden, with a few long erect hairs laterally on basal  $\frac{1}{2}$ . Prosternum and mesosternum finely punctate and pubescent; metasternum with an elevated tubercle each side of middle, with fine, moderately dense, subdepressed golden pubescence at sides. Elytra more than 3 times as long as broad, strongly attenuate, slightly dehiscent for most of length, apices oblique, feebly emarginate; punctures moderately fine, close; pubescence moderately dense, short, subdepressed, golden on disk, black laterally. Legs slender; metatibiae curved outward near apices, strongly carinate internally, inner apical spurs modified as small spatulate processes; metatarsi with 1st segment feebly sinuate. Abdomen extending 2 full segments past elytral tips; sternites finely punctate on basal  $\frac{2}{3}$ , punctures becoming more coarse and sparse toward apices; 4th sternite with apical  $\frac{1}{3}$  moderately deeply excavated; last sternite deeply excavated for its entire length, sides strongly produced. Length 16–19 mm.

*Female.* — Unknown.

*Holotype* male (California Academy of Sciences) and 26 male *paratypes* from PANAMA, Panamá prov., 10–13 km N El Llano, 1800' (on blossoms of *Psychotria luxurians* Rusby), June 3–5, 1982 (E. Giesbert), 14 additional *paratypes* from

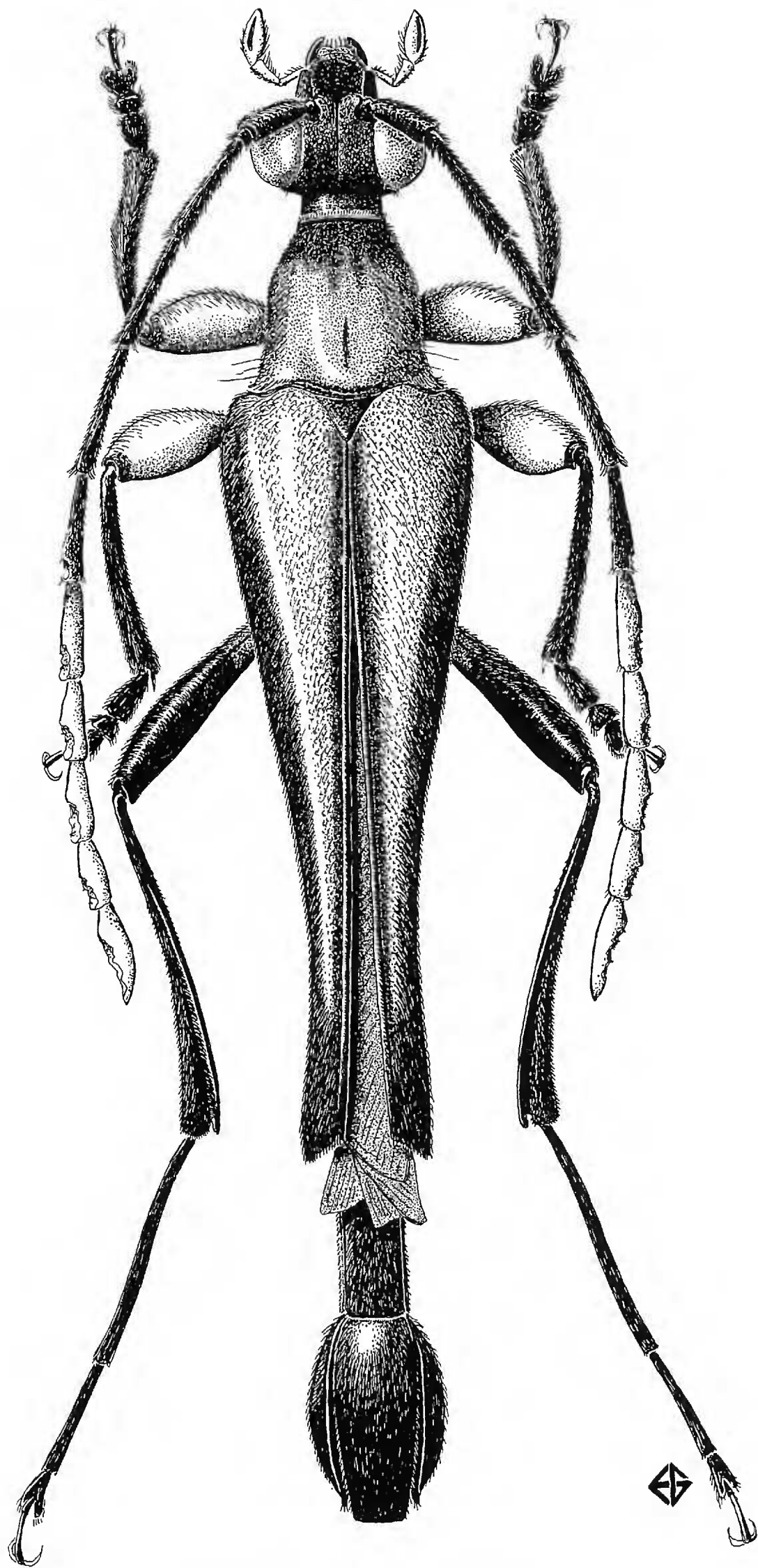


Figure 2. *Strangalia panamensis* Giesbert, new species; male.



PANAMA: 2 males, Panamá prov., Cerro Campana, 2700' June 3–5, 1981 (E. Giesbert); 2 males, Panamá prov., 10–13 km N El Llano, May 30–June 2, 1983 (J. Wappes); 1 male, Panamá prov., 10–13 km N El Llano, May 29–31, 1983 (E. Giesbert); 1 male, Panamá prov., Cerro Campana, June 1, 1983 (E. Giesbert); 2 males, Panamá prov., 10 km N El Llano, 1400', May 4–20, 1984 (E. Giesbert); 1 male, Panamá prov., Cerro Campana, 2200', May 18, 1984 (E. Giesbert); 5 males, Panamá prov., 10.5 km N El Llano, June 3–5, 1984 (F. Hovore).

*Remarks.* —Color variation in the type series consists mainly of the degree of infuscation on the pronotal disk, which ranges from a narrow apical blackish area to an all blackish disk.

Superficially similar, *Strangalia panamensis* and *S. maculifrons* are sympatric in central Panama. Both species have been encountered by the author on the same blossoming shrubs each time they have been collected.

A single unaccompanied female, possibly of this species, was captured by the author at a different elevation on Cerro Campana in Panama. Although it bears a close resemblance to *S. panamensis* in coloration, this unassociated specimen will not be assigned here as an allotype, until examples collected in copulo establish its relationship with certainty.

### *Strangalia linsleyi*, NEW SPECIES

(Fig. 3)

*Male.* —Form moderately small, elongate, tapering, narrowest at apical  $\frac{1}{3}$ ; integument black, with tips of mandibles, prothorax, mesosternum, pro- and mesocoxae, basal  $\frac{3}{4}$  of profemora, and basal  $\frac{3}{5}$  of mesofemora orange, portions of palpi and segments 7 or 8 to 11 of antennae yellowish testaceous. Head with front short, medially impressed, finely punctate and pubescent; palpi unequal, slender, subcylindrical; vertex concave behind antennal tubercles, finely, shallowly punctate with scattered larger punctures, finely, sparsely pubescent with several long hairs directed posteriorly, longitudinal impression feeble; tempora obtusely tuberculate; antennae extending to about apical  $\frac{1}{3}$  of elytra, segments from 6th thickened, subserrate, shortened, with transversely oriented apical sensory pits, segments to 6th with suberect black pubescence, remaining segments with pale, silky micropubescence. Pronotum shorter than basal width, with sides forming a continuous sinuate line with elytral humeri; disk finely, shallowly, transversely rugulose-punctate, moderately clothed with short appressed golden pubescence. Prosternum shining, nearly glabrous; meso- and metasternum finely, densely, shallowly punctate, finely pubescent. Elytra 3 times as long as basal width, tapering to apical  $\frac{1}{3}$ , then widening to convex, obliquely subtruncate apices with outer angle dentate, inner angle widely rounded, margins vertical; disk subplanate, punctures granulate near base, larger than those of pronotum, pubescence black, suberect. Legs moderately slender; metatibiae not carinate internally. Abdomen moderately elongate, extending approximately 1 segment beyond elytral apices; finely, densely, shallowly punctate, with fine, suberect, pale pubescence; 4th sternite subcylindrical; terminal sternite broadly excavated for its entire length, excavation subglabrous, with apex deeply emarginate, apical angles obtuse, moderately produced vertically; terminal tergite convex, apically subtruncate. Length 9–11 mm.



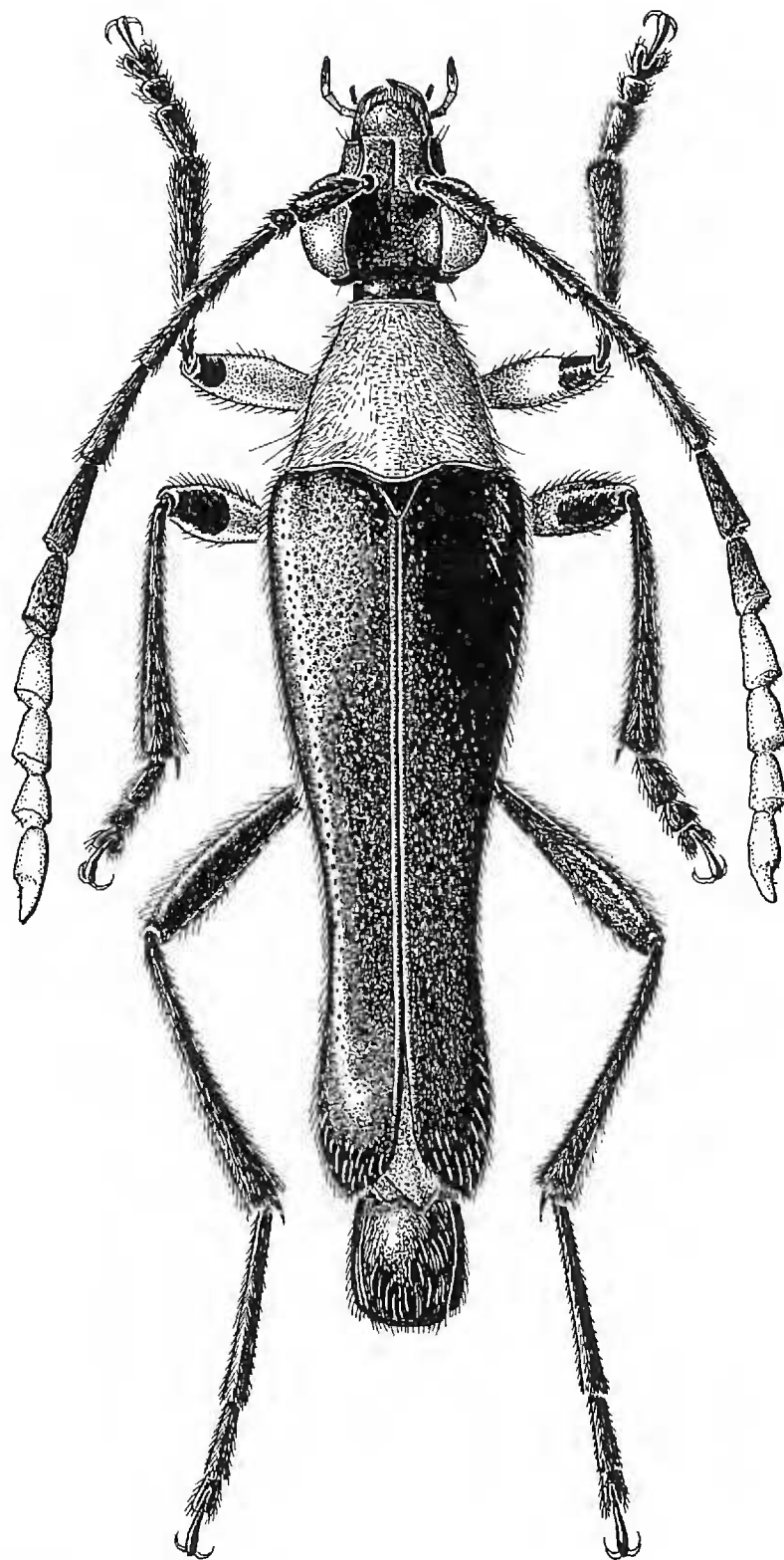


Figure 3. *Strangalia linsleyi* Giesbert, new species; male.

*Female.* — Unknown.

*Holotype male* (California Academy of Sciences) and 24 male *paratypes* from PANAMA, Panamá prov., Cerro Jefe, 2800', May 12–31, 1984 (E. Giesbert). 2 additional *paratypes*, same locality and dates (F. Hovore).

*Remarks.* — This species may be easily distinguished from its congeners in the area of this study by its small size, shortened subserrate antennae, and flattened elytral disk with rounded inner apical angles. Variation is expressed in the color of the scutellum, which may be indistinctly orange, and in orange markings on the genae and bases of metafemora in approximately 20 percent of examples in the type series.

*Strangalia linsleyi* exhibits some characters which are somewhat anomalous in the genus in Central America, but appears to be congeneric with the worldwide species which are presently defined as *Strangalia*.

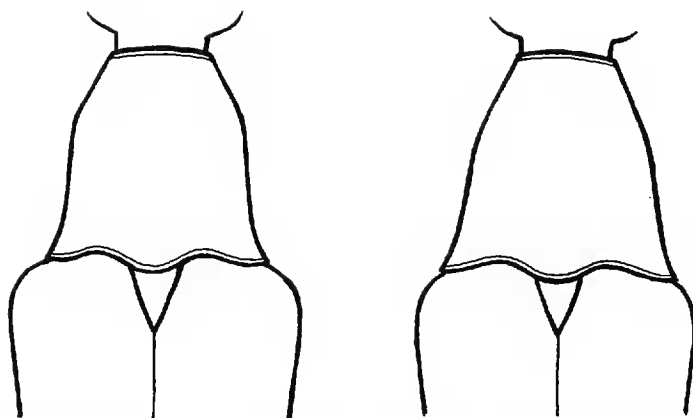


Figure 4. Relative shape of pronotum: left, *Strangalia cantharidis* (Chemsak & Linsley); right, *S. pseudocantharidis* Giesbert.

It is a pleasure to dedicate this species to E. Gorton Linsley in honor of his lifelong contributions to the knowledge of Cerambycidae.

***Strangalia cantharidis* (Chemsak & Linsley), NEW COMBINATION**  
(Fig. 4)

*Pseudotypocerus cantharidis*, Chemsak & Linsley, 1976a:174; Chemsak and Linsley, 1981:486.

The following description of the previously unknown male is based in part on a series of examples from the type locality.

*Male*. — Form moderate-sized, elongate, tapering to apex; integument yellowish-testaceous, with head, antennae, scutellum, portions of meso- and metathorax, abdomen except base of 1st sternite, 4th sternite, and basal ½ of terminal sternite and tergite, tibiae, tarsi, and apices of elytra black, femora black except underside at base longitudinally testaceous. Head with front moderately elongate, more than 1½ times as long as broad, sparsely pubescent, irregularly punctate; vertex with fine longitudinal impression, finely, densely punctate, with larger punctures interspersed; antennae extending to about apical ⅓ of elytra, segments 6–11 with apical poriferous sensory pits containing small fascicles of short setae, distal segments clothed with golden micropubescence. Pronotum campanulate, moderately convex, sides sinuate, narrower across basal angles than elytral humeri (Fig. 3); disk finely, subconfluently punctate; pubescence pale golden, longitudinally appressed, moderately dense. Prosternum nearly glabrous; meso- and metasternum minutely, densely punctate, densely clothed with golden appressed pubescence, metasternum with elongate tubercle each side of shallow median impression. Scutellum triangular, with golden, longitudinally appressed pubescence. Elytra slightly more than 2½ times as long as broad, tapering to obliquely emarginate apices; disk with punctures fine, moderately dense, subgranulate; pubescence short, golden, appressed. Legs slender; protibiae slightly sinuate, with golden pubescence; metatibiae feebly carinate on inside at apices. Abdomen elongate, extending nearly 2 segments beyond elytral apices, finely, closely punctate and pubescent on basal ¾ of sternites 1–4; terminal sternite deeply, broadly excavated for its entire length, with excavation shining, nearly glabrous, lateral margins vertical and produced as subtruncate lobes; terminal tergite subtruncate, with basal ⅔ golden pubescent. Length 14–15 mm.

*Type locality*. — Cerro Campana, Panama prov., PANAMA.

*New material examined*. — 20 males, 3 females, from PANAMA, Panamá prov.,

Cerro Campana, 2700', June 3–5, 1981 (E. Giesbert); 1 male, Panamá prov., Cerro Campana, 2700', May 3, 1981 (E. Giesbert); 5 males, 2 females, Panamá prov., 10–13 km N El Llano, 1800' (on blossoms of *Psychotria luxurians* Rusby), June 3–5, 1982 (E. Giesbert); 3 males, Panamá prov., 10–13 km N El Llano, May 29–31, 1983 (E. Giesbert).

*Remarks.*—This and the following species were originally described as *Pseudotypocerus* based solely on female specimens. Subsequent collection of both sexes shows the males to have the elongated abdomen typical of the genus *Strangalia*.

***Strangalia dimidiata* (Chemsak & Linsley), NEW COMBINATION**

*Pseudotypocerus dimidiatus* Chemsak & Linsley, 1981:487.

The following description of the previously unknown male of this markedly dimorphic and dichromatic species is based on a series of examples collected within a few miles of the type locality.

*Male.*—Form moderate-sized, elongate, tapering posteriorly; integument black, with palpi testaceous, and elytra whitish testaceous with apices, margins widely, and suture narrowly, black. Head with front moderately long, densely punctate except on raised triangular callus; palpi unequal, with terminal segment of maxillary pair large, spatulate; vertex finely, densely punctate, sparsely pubescent, with fine linear impression from between antennal tubercles to neck; antennae surpassing elytral apices by approximately 1 segment, slender, with segments from 6th slightly thickened, 7th segment with apical sensory pit, segments 8–11 with large dorsal and ventral sensory pits from base to apex, segments to 5th with black subdepressed pubescence, remaining segments with silky, pale yellowish micro-pubescence. Pronotum longer than basal width, with sides sinuate, apex shallowly impressed; disk evenly convex, finely, densely punctate, with fine, depressed, pale pubescence, and a few long, erect hairs laterally near base. Prosternum finely, shallowly punctate, and finely pubescent on basal  $\frac{1}{2}$  in front of coxae; meso- and metasternum finely, densely punctate and pubescent, metasternum with acute tubercle each side of centro-apical glabrous impression. Elytra nearly 3 times as long as basal width, sides tapering to apical  $\frac{1}{4}$ , then slightly dehiscent to apices, which are obliquely emarginate with acute angles; disk with punctures small, separate, pubescence short, moderately dense, subdepressed. Legs moderately slender; metatibiae lacking carinae, with double apical spurs. Abdomen extending  $1\frac{1}{4}$  segments beyond elytral apices, sternites each finely, densely punctate and pubescent near base, with punctures and pubescence becoming sparser apically, 1st sternite somewhat more pubescent than remainder of abdomen; terminal sternite excavated for its entire length, with sides strongly produced as a pair of downward-directed foliate lobes, excavation shining, with short central carina at apex; 4th sternite evenly convex; terminal tergite convex, with apex subtruncate to shallowly emarginate. Length 13–17 mm.

*Type locality.*—Cerro Azul, 700 m, Panama prov., PANAMA.

*Material examined.*—33 males, 22 females, from PANAMA, Panamá prov., Cerro Jefe, 2800' (on blossoms of *Psychotria luxurians* Rusby), May 12–31, 1984 (E. Giesbert); 3 males, 1 female, Panamá prov., Cerro Jefe, May 31, 1984 (F. Hovore).

*Remarks.*—There is very little similarity between the previously described fe-



male, and the male described above. In addition to the sexual dimorphism often seen in *Strangalia*, *S. dimidiata* is also highly dichromatic, the female having yellow-orange integument with the head, appendages, quadrate elytral humeral maculae, and apices black. Positive association is based on the collection of a number of pairs in copulo.

***Strangalia pseudocantharidis*, NEW SPECIES**

(Fig. 3)

*Male*. —Form moderate-sized, elongate, tapering; integument yellow-orange, with elytra yellowish, head except macula on underside of neck, tips of maxillary palpi, antennae, scutellum, meso- and metasternum, abdomen except most of 4th segment, posterior  $\frac{1}{2}$  of procoxae, meso- and metacoxae, apical  $\frac{1}{2}$  of meso- and metafemora, tibiae, tarsi, and apices of elytra black. Head with front moderately elongate, less than  $1\frac{1}{2}$  times as long as broad, sparsely pubescent, irregularly punctate; vertex finely, densely punctate with larger punctures interspersed, moderately clothed with transversely appressed golden pubescence; antennae extending to about apical  $\frac{1}{3}$  of elytra, outer segments micropubescent, with large apical poriferous sensory pits bearing small fascicles of short setae. Pronotum moderately convex, base nearly as wide as elytral humeri, sides forming a nearly continuous sinuate line with elytral humeri (Fig. 3); disk finely, subconfluently punctate, pubescence pale golden, moderately dense, longitudinally appressed. Prosternum nearly glabrous; meso- and metasternum finely, densely punctate, densely clothed with appressed golden pubescence. Elytra  $2\frac{1}{2}$  times as long as broad, tapering to obliquely emarginate apices; disk with punctures fine, moderately dense, subgranulate, pubescence short, golden, appressed. Legs slender, with golden pubescence on inside of protibiae; metatibiae not carinate internally. Abdomen elongate, extending about 2 segments beyond elytral apices; finely, closely punctate and pubescent on basal  $\frac{3}{4}$  of sternites 1–4; terminal sternite broadly, shallowly excavated for most of its length, excavation moderately sparsely, finely punctate and pubescent, widest across flattened, sinuate-truncate apex; terminal tergite subtruncate, basal  $\frac{2}{3}$  golden pubescent. Length 14–15 mm.

*Female*. —Form somewhat more robust than male; head black with ventral surface and genae usually marked with orange, abdomen orange with base and apex of sternites 1–4 narrowly black, terminal sternite and tergite black, profemora with apical  $\frac{1}{3}$  black; antennae reaching to about middle of elytra; abdomen not elongate, extending about 1 segment beyond elytral apices, with hind angles of emarginate-truncate apex rounded. Length 11–14 mm.

*Holotype* male, *allotype* (California Academy of Sciences), and 2 female *paratypes* from PANAMA, Panamá prov., Cerro Campana, 2700', June 3–5, 1981 (E. Giesbert). Additional *paratypes*: 3 males, 2 females, from PANAMA, Panamá prov., 10–13 km N El Llano, 1800' (on blossoms of *Psychotria luxurians* Rusby), May 29–31, 1983 (E. Giesbert, J. Wappes); 1 male, 1 female, PANAMA, Panamá prov., 10 km N El Llano, June 3, 1984 (R. Penrose); 1 female, COSTA RICA, San Jose, July 22, 1962 (A. E. Lewis).

*Remarks*. —*Strangalia pseudocantharidis* and *S. cantharidis* are sympatric in Panama, and although superficially similar, structural differences indicate that they may not be very closely related. These apparently convergent species appear to share mimicry of a common model, presumably a similarly colored cantharid

beetle which has been observed in company with the latter species (Chemsak and Linsley, 1976a).

*S. pseudocantharidis* may be separated from *S. cantharidis* by the form of the pronotum (Fig. 3), the metatibiae lacking carinae, the orange femoral bases divided from the black apices transversely, rather than longitudinally, the head at least partially orange on the underside, the apically dark last segment of the maxillary palpi; and in the males, by the usually orange profemora, and the form of the last abdominal sternite.

### *Strangalia instabilis*, NEW SPECIES

*Male*. — Form moderate-sized, elongate, tapering posteriorly; integument black, with discal vitta on each elytron from base to near apex, usually interrupted at apical  $\frac{1}{4}$ , and often also at basal  $\frac{2}{5}$ , yellow-testaceous; tips of maxillary palpi, and often femora, tibiae, and distal portions of antennae brownish orange to orange. Head with front long, finely, moderately densely punctate except on central callus; palpi unequal, maxillary pair with terminal segment large, leaf-shaped; vertex with linear impression between antennal tubercles, finely, confluent punctate, very sparsely pubescent, with several long erect hairs directed posteriorly from behind eye; antennae nearly attaining elytral apices, slightly thickened from 6th segment, which bears a single oval sensory pit near apex, segments from 7th with a pair of moderate-sized, smooth, oval sensory pits, segments to 5th with subdepressed black pubescence, remaining segments micropubescent. Pronotum longer than broad, with sides slightly sinuate, apex shallowly impressed; disk evenly convex, with punctation moderately fine, not contiguous, with narrow glabrous median line; pubescence moderately sparse, fine, subdepressed, with a few long erect hairs on basal  $\frac{1}{2}$  laterally. Prosternum finely, closely punctate and pubescent on basal  $\frac{2}{3}$  in front of coxae; mesosternum finely, closely punctate and pubescent; metasternum with a pair of nearly contiguous posteriorly directed acute tubercles near apex. Elytra about 3 times as long as basal width, sides with basal  $\frac{2}{3}$  tapering, apical  $\frac{1}{3}$  nearly parallel-sided, slightly dehiscent near apices, which are obliquely emarginate, with acute angles; disk with punctures small, separate, pubescence short, moderately dense, subdepressed. Legs moderately slender, metafemora dorsally carinate to near apices; metatibiae carinate on inner side, with double apical spurs. Abdomen extending  $1\frac{1}{2}$  segments beyond elytral apices; sternites finely, densely punctate and pubescent basally, punctures becoming coarser and much sparser apically; 4th sternite evenly convex, terminal sternite with a deep rounded concavity between 2 curved foliate plates for nearly its entire length, with a short centro-apical carina; terminal tergite convex, with apex rounded. Length 14–17 mm.

*Female*. — Form slightly more robust than male; antennae reaching to about apical  $\frac{1}{3}$  of elytra, lacking distinct sensory pits; abdomen not elongate, extending about 1 segment beyond elytral apices, with terminal sternite shallowly emarginate and impressed at apex; terminal tergite feebly bilobed; metatibiae lacking carinae. Length 12–16 mm.

*Holotype* male, *allotype* (California Academy of Sciences), and 28 *paratypes* (18 males, 10 females) from PANAMA, Panamá prov., Cerro Jefe, 2800' (on blossoms of *Psychotria luxurians* Rusby), May 12–31, 1984 (E Giesbert). 17 additional *paratypes* as follows: 7 males, 4 females, PANAMA, Panamá prov.,



Cerro Campana, 2700', June 3–5, 1981 (E. Giesbert); 4 males, 1 female, PANAMA, Panamá prov., Cerro Jefe, May 31, 1984 (F. Hovore); 1 female, COSTA RICA, Braulio Carillo N.P., May 28, 1983 (P. Sherrill).

*Remarks.* — This species may be distinguished from its congeners in the area of this study by the combination of yellowish vittate elytra with carinate metatibiae, double antennal sensory pits, and distinct metasternal tubercles in the males; vittate elytra, black abdomen, and often partially orange appendages in the females.

A great deal of variation is expressed in the color of the appendages. The antennae may be all black, all orange or orange-brown, or with the basal segments blackish and outer segments orange. The legs vary from all black, to all orange femora with orange-brown tibiae. The elytral vittae may be entire, interrupted at the apical  $\frac{1}{4}$ , or interrupted at both the apical  $\frac{1}{4}$  and the basal  $\frac{2}{5}$  to form a pattern of 3 lineoles on each elytron. In the specimens at hand, the Cerro Jefe population exhibits the latter tendency, while the Cerro Campana examples usually have less interrupted vittae, and a tendency toward dark appendages. The Costa Rican specimen has black antennae with orange pro- and mesofemora.

***Strangalia montivaga*, Chemsak & Linsley**

*Strangalia montivaga* Chemsak & Linsley, 1976b:226.

This species was described on the basis of female specimens. The following description of the male is drawn from a series of examples from the general area of the type locality.

*Male.* — Form moderate-sized, slender, elongate, tapering posteriorly; integument black with a narrow longitudinal vitta on each elytron from base to just before apex yellowish. Head with front moderately short, moderately coarsely, closely punctate and pubescent, except on triangular callus, with median linear impression from callus to between antennal tubercles; maxillary palpi with terminal segment slender, subcylindrical; vertex densely, moderately coarsely punctate, sparsely pubescent; antennae attaining elytral apices, slender, sensory poriferous pits very small, indistinct. Pronotum about as long as basal width, with sides slightly sinuate, apex shallowly impressed; disk evenly convex, moderately densely punctate, finely, sparsely pubescent, median glabrous line indistinct. Prosternum and mesosternum finely, densely punctate and pubescent; metasternum lacking tubercles, with fine, dense punctation and pubescence becoming slightly sparser apically. Elytra nearly  $3\frac{1}{2}$  times as long as basal width, sides with basal  $\frac{2}{3}$  tapering, then widening and slightly dehiscent to obliquely truncate apices; disk with punctures moderately close, slightly larger than those of pronotum, pubescence short, subdepressed. Legs slender; metatibiae lacking carinae, with 2 apical spurs. Abdomen slender, extending 2 segments beyond elytral apices; sternites finely, densely punctate and pubescent basally; 4th sternite cylindrical with at most a slight apical indentation, terminal sternite excavated for its entire length, laterally produced outward and downward as a pair of foliate lobes; terminal tergite convex, subtruncate. Length 15–18 mm.

*Type locality.* — 24 mi W La Ciudad, Durango, MEXICO.

*Material examined.* — 8 males, 3 females, from MEXICO, Sinaloa, 2–7 km W El Palmito, August 3–7, 1983 (E. Giesbert); 1 male from EL SALVADOR, La



Palma, 1200 m, May 12, 1971 (H. Howden); 1 male from HONDURAS, 16 km N Siguatepeque, June 14, 1979 (J. A. Chemsak, A. and M. Michelbacher, W. W. Middlekauff).

*Remarks.* — Along with the usual sexual dimorphism in *Strangalia*, the abdomen of *S. montivaga* is red in the female, and black in the male. The Honduras specimen differs from the Sinaloa series by a slight indentation at the apex of the 4th abdominal sternite. In the example from El Salvador, the elytral vittae are reduced to a small basal lineole on each side.

An additional male of this species was reared by the author from a 1½ inch diameter section of *Pinus* sp., slightly punky and without bark, found lying on the ground at the Sinaloa location.

### *Strangalia annae*, Chemsak & Linsley

*Strangalia annae* Chemsak & Linsley, 1981: 490.

This apparently variable species is here recorded from Panama, where examples seen are all black, with the exception of abdominal segments 1 to 4 reddish, and the profemora partially orange.

*Type locality.* — 6 km S Santa Elena, Puntarenas prov., COSTA RICA.

*New material examined.* — 1 male, 2 females, from PANAMA, Panamá prov., Cerro Campana, 2700', June 3–5, 1981 (E. Giesbert).

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